

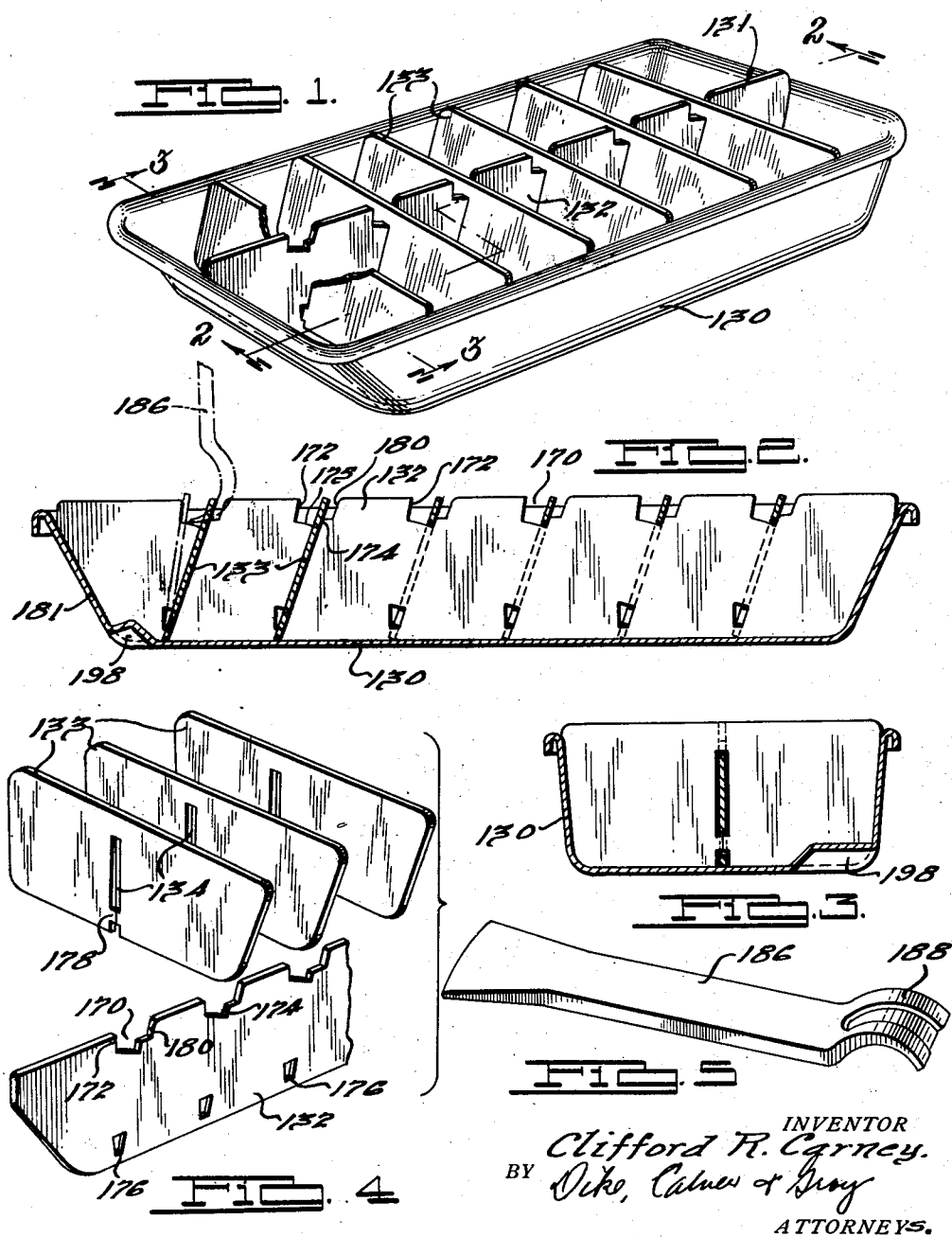
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ICE TRAY

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ICE TRAY

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6 Claims. (Cl. 62-108.5)

This invention relates to ice trays, and more particularly to an ice tray having a removable grid which is provided with a plurality of independently movable sections which may be operated to permit the independent removal of any desired number of ice cubes from the grid and ice tray.

Heretofore considerable difficulty has been experienced in effecting the removal of an ice block partitioning structure or grid from the tray or pan, and also in effecting the removal of the individual ice blocks or cubes from the grid. I have found that these difficulties can be overcome by providing a partitioning structure or grid having a plurality of generally transversely extending angularly disposed members movably mounted on a generally longitudinally extending grid member. The longitudinally extending member is preferably provided with vertically spaced stop members to position the generally transversely extending grid members at an angle to the vertical prior to the freezing of the ice cubes therein whereby a force may be applied to the transverse members to move them towards the upright or vertical position thereby producing a wedging or sliding force on the ice blocks or cubes to break the contact between the ice cubes and the grids and tray structure.

An object of this invention is therefore to provide an ice tray grid structure having a plurality of generally transversely extending angularly movable grid members mounted on a generally longitudinally extending grid member.

A further object of the invention is to provide an ice tray grid structure having a generally longitudinally extending member provided with vertically spaced stop members adapted to support a plurality of generally transversely extending grid members at an angle to the vertical.

A still further object is to provide a gravity actuated ice tray grid structure wherein a plurality of generally transversely extending members are movable to one angularly related position by the force of gravity, and may be manually moved to another angularly related position to release the ice cubes from the grid and tray structure.

Another object of the invention is to provide an ice tray grid member having a generally longitudinally extending member provided with vertically spaced stop members adapted to support a plurality of generally transversely extending grid members at an angle to the vertical under the influence of the force of gravity acting on

the transverse members when the grid structure is placed in a generally horizontal position.

A further object is to provide an ice tray grid which is so constructed as to permit the mechanical removal of the ice cubes from the grid by a separate application of power to each transverse section of the grid.

Another object is to provide an ice tray grid which is so constructed as to permit selective manipulation of the transverse grid members to secure the progressive release of either all or a portion of the ice cubes contained therein without first partially melting said cubes.

A further object of the invention is to provide an ice tray grid from which the separate ice cubes may be removed selectively either as separate cubes or in multiples of any desired number.

A still further object of the invention is to provide an ice tray grid from which the ice cubes may be released by a relative movement of the separate elements of the grid, and in which a portion of the grid is used as a fulcrum for the application of power by the wrench or lever to release the cubes from the grid and the tray.

Yet another object is to provide a grid structure having a longitudinally extending member and a plurality of transversely extending members carried thereby wherein means are provided between portions of the longitudinally and transversely extending members to permit the application of power to the transversely extending members to vary their angular relation relative to the longitudinally extending member and by such variation in angular relation to release the ice cubes from the grid and tray.

A further object is to provide manually operable means for exerting a force on the transversely extending grid members to vary the angular relation of said transverse members relative to a longitudinal member forming a part of the grid structure to effect the release of ice cubes from the grid structure.

Other objects and advantages of this invention will be apparent from the following detailed description considered in connection with the accompanying drawing, submitted for purposes of illustration only, and not intended to define the scope of the invention, reference being had for that purpose to the subjoined claims.

In the drawing wherein similar reference characters refer to similar parts throughout the several views:

Fig. 1 is a view in perspective of an ice tray and grid embodying the present invention.

Fig. 2 is a longitudinal section taken substan-

tially on the line 2—2 of Fig. 1 looking in the direction of the arrows.

Fig. 3 is a transverse section taken substantially on the line 3—3 of Fig. 1 looking in the direction of the arrows.

Fig. 4 is a view in perspective of the various parts of the grid shown in separated relationship.

Fig. 5 is a perspective view of one suitable type of wrench or manually operable means adapted for use with the tray and grid structure illustrated.

Before explaining in detail the present invention it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawing, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation, and it is not intended to limit the invention claimed herein beyond the requirements of the prior art.

In the embodiment of the invention shown in Figs. 1 to 5, 130 represents an ice tray of any desired size and shape and 131 represents the grid member, which is constructed to provide a plurality of compartments in which a liquid body is confined within the tray 130 for freezing into cubes or any other desired shape. The grid 131 comprises a longitudinal partition or separator member 132 and a plurality of transverse partitions or separator members 133. Each transverse partition 133 is preferably provided with a centrally disposed vertical slot 134 which extends from approximately the central portion of the partition down almost but not quite to its lower edge.

It will be observed that the upper edge of the longitudinally extending grid member 132 is formed with compound slots 170 defined by forward edge portions 172 of the member 132 which act as stop members to engage the portions of the transverse members 133 above the vertical slots 134 to limit forward movement of the upper edges of the transverse grid members 133. Intermediate edge portions 174 of the longitudinal member 132 act as stop members to engage the portions of the transverse members 133 above the vertical slots 134 to limit rearward or downward movement of the upper edges of the transverse grid members 133.

The lower portion of the longitudinal grid member 132 is preferably formed with V-shaped apertures or notches 176, as illustrated in Fig. 4, to receive flange portions 178 formed in the transverse grid members 133 below the vertical slots 134 to hold the transverse members in assembled relation relative to the longitudinal grid member 132.

The apertures or notches 176 are spaced longitudinally with reference to the edges 172 and 174 and the movement of the transverse grid members 133 is confined in such a manner that when the grid is positioned in a substantially horizontal position, the transverse members 133 will drop by gravity into engagement with the edge portion 174. Expressed in a different manner, the upper stop member defined by the edges 172 is spaced rearwardly of the lower stop members formed by the apertures 176. Particularly satisfactory results have been obtained when the angular relation of the transverse grid members 133 relative to the horizontal is approximately 70°. It is not

necessary that the transverse members move through an extended angle, since movement of a few degrees only is sufficient to break the contact between the ice cubes and the grid and tray members. The edge portions 172 may therefore be moved closer to the edge portions 174 if desired. The surface 175 between the edge portions 172 and 174 may be arcuate in shape to correspond generally to the angular movement of the transverse grid members, or may be flat as desired.

Edge portions 180 formed in the upper edge of the longitudinal grid member 132 are provided to permit the insertion of a suitable implement or tool to engage the upper portion of the transverse grid members 133 to move them forwardly toward a vertical position to break the contact between the ice cubes and the grid and tray members. One desirable form of such an implement is illustrated in Fig. 5 wherein a lever 186 is provided with a curved end portion 188 adapted to engage the transverse grid members 133 and the edge portion 180 of the longitudinal grid member to move the transverse members 133 to an angularly inclined position to break the contact between the ice cubes and the tray and grid. It will be understood that any suitable instrument may be employed to actuate the transverse members 133, and the invention is not limited to the use of the implement shown in Fig. 5.

As illustrated in Figs. 2 and 3, a portion of the forward edge of the pan 130 may if desired be indented as shown at 198 to receive an implement such for example as that shown in Fig. 5, or other suitable implement, to exert a lifting force on the pan to break the frozen contact between the bottom of the pan 130 and the shelf or supporting surface on which it rests in the refrigerator compartment.

It will be understood that using the grid previously disclosed it is possible to remove any number of ice cubes in multiples of two either at one time or at different times during the use of the tray, and the removal of the cubes is greatly facilitated by the progressive movement of the transverse partitions of the grid, since the power applied need merely be directed to a single pair of cubes at a time with the result that less resistance is offered to the removal of the cubes. The grid and lever described herein are also of such construction that the forces applied for releasing the cubes are directed against the various partitions of the grid and are not applied directly to the walls of the tray.

To further facilitate the loosening of the grid and the removal of the ice cubes, particularly the first pair removed, the tray 130 may be provided with a sloping forward wall 181, although it should be understood that the effective operation of the grid is not dependent on a tray of this nature and trays of ordinary shape or construction may readily be used.

Using the form of the grid construction shown, it will be apparent that the operation of the grid for removing frozen cubes or other shaped frozen objects therefrom requires the freeing of only the desired number of such cubes or objects from the grid and the tray. During this operation, the grid and its contents is securely frozen to the tray except for those particular portions where the transverse members have been moved for the express purpose of freeing the adjacent cubes or objects therefrom. This makes it possible for the housewife or other user to operate the grid readily with one hand while holding the tray and the grid with the remaining frozen

cubes or other objects with the other hand. This is a desirable feature of the present grid construction for as it will be seen, there is no necessity for freeing the grid and its contents at one time from the tray and thereafter requiring a separate manipulation effort of the user to free the grid from the freed frozen block.

It is also to be understood that while the embodiments of the invention here disclosed by way of example employ but a single longitudinally extending member, it is within the scope of the present invention to use any desired number of such members to divide the ice tray or other container into any desired number and shapes of separate compartments.

I claim:

1. An ice tray grid comprising a vertically disposed longitudinally extending member having a plurality of spaced relatively long notches defined by spaced edge portions formed in its upper edge and a plurality of spaced relatively short notches formed adjacent its lower edge, a plurality of separately movable transversely extending members mounted on the longitudinally extending member and movable angularly in said notches from inclined positions of approximately seventy degrees to the horizontal towards increased angularly inclined positions relative to the horizontal, and a plurality of spaced abutments formed in the longitudinal member each adjacent one of the first mentioned spaced edge portions to provide a space between each abutment and the associated transverse member, whereby a detached prying tool may be selectively received between said abutments and transverse members to move the transverse members angularly from said inclined position of approximately seventy degrees to release ice.

2. In a grid for an ice tray, a unitary longitudinally extending member having a plurality of longitudinally spaced upper and lower apertured portions defining stop members, a plurality of substantially rigid independently operable transversely extending members mounted in said upper and lower apertured portions to move each from an ice forming angularly inclined position of approximately seventy degrees to the horizontal towards an angular position of less than eighty-five degrees to the horizontal whereby ice will be released from the tray and grid and the transverse members may assume said angularly inclined ice forming positions under the influence of the force of gravity when the grid is positioned in a substantially horizontal position, and an abutment formed in the longitudinally extending member adjacent each of the transverse members when in the ice forming position to provide a space between the abutment and the transverse member above the normal ice freezing level whereby detached manually operable means may selectively engage said abutments and transverse members to move the transverse members from said angularly inclined ice forming position to release ice.

3. A grid for an ice tray comprising a generally vertically disposed longitudinally extending separator member having a plurality of compound slots, each of said slots including three spaced edge portions formed adjacent its upper edge, and a plurality of apertures defined by paired relatively closely spaced edge portions formed adjacent the lower edge of said member, a plurality of generally transversely extending separator members hingedly mounted in said slots and apertures formed in the longitudinally extend-

ing member, each of the lower apertures being longitudinally spaced relative to one of said compound slots and cooperating therewith to confine one of the transverse members to limited angular movement from a position of rest at a substantially predetermined angle with respect to the bottom of the grid, one edge portion of each of the compound slots forming an abutment spaced from the associated transverse member when in the position of rest to provide a space therebetween for the reception of a detached lever whereby force may be exerted against the transverse members to selectively move said members angularly to release ice.

4. An ice tray grid comprising a partition element extending longitudinally of the grid from one end to the other and having one set of slots extending inwardly from its upper edge and a second set of slots formed adjacent its lower edge, a plurality of transverse partition members extending from one side of the grid to the other, each of said transverse partition members having a portion projecting into one of the upper slots and another portion projecting into a lower slot, the slots of one set being staggered with respect to the slots of the other set and the walls of the sets of slots cooperating to normally hold the transverse partition members substantially in parallelism and each in a position of rest at a substantially predetermined angle with respect to the bottom of the grid, each slot of the upper set being shaped to provide a pair of confronting wall portions spaced to permit the associated transverse partition member to swing through a substantially predetermined arc, and a third wall portion cooperating with said transverse partition member to provide a slot for receiving the end of a lever and to form a fulcrum around which said lever may pivot to move said transverse partition member from its original position of rest.

5. An ice tray grid comprising a partition element extending longitudinally of the grid from one end to the other and having one set of slots extending inwardly from the upper edge of the partition element and a second set of slots extending inwardly from the lower edge, a plurality of transverse partition members extending from one side of the grid to the other and each having a portion extending through one of the upper slots and a second portion extending through a lower slot, the slots of one set being staggered with respect to the slots of the other set and the walls of the sets of slots cooperating to normally hold the transverse partition members in parallelism and in a position of rest at a substantially predetermined angle with respect to the bottom of the grid, each slot of the upper set being shaped to provide a pair of confronting wall portions spaced to permit the associated transverse partition member to swing through a predetermined arc, and a third wall portion cooperating with said partition member to provide a slot for receiving the end of a lever and to form a fulcrum around which such lever may pivot to move said partition member from its original position of rest.

6. A grid for an ice tray comprising a longitudinally extending separator member adapted to be positioned in a substantially vertical position and having a plurality of spaced cut-out portions adjacent its upper and lower edges, a plurality of independently movable transverse members mounted on the separator member and having portions projecting into the upper and lower

cut-out portions of the separator member, the lower cut-out portions of the separator member being defined by relatively closely spaced wall portions and the upper cut-out portions each being defined by two relatively widely spaced
5 confronting wall portions, the upper cut-out portions being so related to the lower cut-out portions that the transverse members may each be moved angularly from a substantially predetermined angular position relative to the bottom of
10 the grid relative to the separator member, abut-

ments formed in the separator member below the upper edge thereof and disposed one adjacent each transverse member to provide a space between the abutment and the transverse member above the normal ice freezing level, whereby a detached manually operable tool may be
5 selectively inserted between an abutment and a portion of a transverse member to exert a force on each transverse member to move it angularly relative to the separator member to release ice. 10

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